

chapter 9



**WHAT HAVE WE LEARNED ABOUT
ITS? FINAL COMMENTS**

Author:
Professor Joseph M. Sussman
Massachusetts Institute of Technology

ITS AND CHANGE

Intelligent transportation systems (ITS) represent a sea change in surface transportation, equivalent in a sense to the introduction of air traffic control systems into air transportation. The change is on the scale of what occurred in the second decade of the 20th Century, when creation of the Federal-aid highway program forged a fundamentally new relationship between the Federal Government and state governments, as the idea of a national highway transportation system began to take shape.

The changes today are no less important. The electronic linkage between vehicle and infrastructure represented by ITS has profound implications for surface transportation. But the changes thus far have been largely incremental, the real impact yet to be felt. Integrated, regional systems are examples of the kinds of changes to come.

To truly absorb the functional change in transportation that ITS represents, one must go beyond just creating institutional change in transportation organizations to creating cultural change—reflecting the importance of operations, new technology, and market-based forces, especially in the highway sector. Achieving these cultural changes will take leadership, education, and training.

ITS represents a major opportunity for the transportation profession to evolve to a more sophisticated level. Advanced technologies, systemic thinking about transportation services, and expanded possibilities for important policy initiatives in technology-enabled transportation all create vital professional opportunities—which the educational sector must recognize and build upon.

To conclude, this study imparts the following overarching lessons about ITS:

- **Integrated Systems:** The real leverage of ITS will occur in integrating systems and services. The low hanging ITS fruit, already picked, was often a product of stand-alone deployments. Now the ITS community must be careful not to create its own legacy systems and thereby build barriers to deployment of more advanced integrated systems.
- **Regional Systems:** The ability to deal functionally with transportation management on a regional scale is an important opportunity to enhance transportation system effectiveness.
- **Partnerships:** ITS requires partnerships among public organizations at various levels—Federal, state, local—to achieve its full potential. The long tradition of cooperation among these organizations can be effectively used as a basis for building public-public partnerships.

Because of its electronic connection to vehicles and infrastructure, ITS requires that the public and private sectors cooperate at a level not previously required for surface transportation. Even though the public and private sectors differ in capability, mission, and philosophy, they can cooperate and they must cooperate to achieve successful ITS deployment on a large scale.

- **Institutionalization of Operations:** ITS enables more effective operation of transportation systems, particularly meaningful in the current environment, where conventional infrastructure is difficult to build. To optimize transportation efficiency, organizations providing transportation infrastructure and services must institutionalize their operations.
- **Political Support and Public Acceptance:** Political support and public acceptance of ITS can come about by carefully focusing on issues that matter—safety and quality of life. Anticipated results should be described both qualitatively and quantitatively, if possible. Further, it is important to create bipartisan political acceptance of ITS and to recognize the media’s central role in helping to build the case for ITS.
- **Human Resources:** Deployment of any of the systems described in this report will require transportation professionals who can deal effectively with new ITS technologies and their service and political implications. Educating and training these individuals and integrating them into transportation organizations is a primary consideration.
- **The Traveler as a Customer:** Although a controversial point, surface transportation must be considered a market of divergent customers with varying individual requirements. ITS technologies can greatly enhance provision of differentiated service.

So, what have we learned about ITS? We are at the end of the beginning. The low hanging fruit is gone from the tree, and much has been achieved by choosing clear-cut, sure winners—an appropriate strategy for the first generation of any technology. However, for true deployment success, we must reach higher into the tree, focusing on integrated, regional, and market-driven systems.

That ITS can be an important component of surface transportation is beyond question, but so much more can be done. It is the Internet age and the public’s expectations are changing. People, including travelers, are using sophisticated information technology and telecommunications equipment in their everyday lives. The ability to access information from multiple sources with the click of a mouse or television switch is a trend poised to continue.

Intelligent transportation systems are the transportation community’s opportunity to be part of this revolution and to advance transportation and the transportation profession. In 1997, the prestigious *Annals of the American Academy of Political and Social Science* published a special issue entitled “Transport at the Millennium.”¹ Comprised of 18 essays, it provides a broad perspective on the transportation field: where it has been, where it is now, and where it is likely to go in the future. Two themes dominated:

1. The need for fundamental change in the relationship between the public and private sectors in the transportation industry. These changes involve letting the market work through deregulation and privatization.

¹ “Transport at the Millennium,” *Annals of the American Academy of Political and Social Science* (September 1997).

2. The use of pricing to create a more rational transportation system by overcoming market failure from “unpriced” externalities—such as congestion, environmental impacts, etc.— caused by the operation of transportation systems.

Clearly ITS has both these ideas at its core and can build on them to make a major contribution for years to come.

The papers included in this compendium give a good sense of where we are in seven major ITS areas and how we can advance to the future. They provide real insight into where successes have already occurred, as well as what is preventing further successes in the future. The ITS community can and should build on the information contained herein to take the next important steps.

Finally, the future demands a more stringent judging of ITS technologies. Success should be predicated on more extensive deployment and on integrated, regionally scaled systems. For now, we are on the right track, but in years to come, we must demand more, as more will be expected.